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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/691,662

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Sung-Su Jung

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EXAMINER

LIN, JAMES

ART UNIT

PAPER NUMBER

1792

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/691,662	<b>Applicant(s)</b> JUNG, SUNG-SU	
	<b>Examiner</b> Jimmy Lin	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-15 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10,11 and 13-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 10-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (U.S. Publication No. 2001/0013920), in view of Komine et al. (U.S. Patent No. 5,292,368), Iwane (JP 11-014953), and Hachiman et al. (JP 2001-356353, listed in the IDS filed 1/6/2004).

Hashimoto teaches a method of making a liquid crystal display panel (abstract). A substrate 21a is placed on a table 31, and liquid crystal is injected onto the substrate through a nozzle of a syringe ([0050]; Fig. 14). The syringe can be attached to a robot arm [0153].

Hashimoto does not explicitly teach that sealant can be dispensed using a syringe. However, Hashimoto does teach that the sealant can be dispensed by any sort of method wherein the sealant is injected on the substrate through a nozzle [0046]. Hashimoto also teaches that a syringe can be used to inject material onto an LCD substrate [0050]. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of invention to have used the syringe of Hashimoto to inject the sealant onto the substrate with a reasonable expectation of success because Hashimoto teaches that the nozzle of the syringe is suitable for injecting a material onto an LCD substrate.

Hashimoto does not explicitly teach a plurality of robot arms having syringes and arranging the plurality of robot arms on opposing sides of the table. However, Komine teaches a method of applying a coating onto a display device. The coating is applied using a plurality of robot arms arranged on opposing sides of the table (abstract; Figs. 1-2). It would have been well within the capabilities of one of ordinary skill in the art to recognize that more than one

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dispenser would have improved productivity over the use of a single dispenser. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have applied this known method of enhancement (i.e., having more than one robot arm arranged on opposing sides of the table) to the dispensing method of Hashimoto with predictable results. One would have been motivated to do so in order to have increased productivity and reduce production costs.

Hashimoto and Komine do not explicitly teach that at least two robot arms are arranged at each opposing side of the table. However, Iwane teaches that producing two or more display areas on a single LCD substrate can increase productivity [0005]. Figs. 1, 2, and 4 explicitly exemplify six display areas on a single substrate. Each of the “plurality of image display parts” as claimed is interpreted to be any two of the six display parts of Iwane. One of ordinary skill in the art would have recognized that having more robot arms, thereby having more dispensing syringes, would have increased the rate of production. In the case of the substrate of Iwane, having a total of six robot arms (i.e., one for each display part) would have been an obvious modification and to have arranged them on opposite sides of the table would have been obvious over Komine. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used a substrate having a plurality of display image parts in order to have increased productivity. Additionally it would have been obvious to one of ordinary skill in the art at the time of invention to have arranged three robot arms on opposing sides of the table of Hashimoto with a reasonable expectation of success. One would have been motivated to do so in order to have provided a robot arm for each of the image display parts of Iwane to thereby further increase productivity and reduce the overall production costs.

Furthermore, the mere duplication of parts has no patentable significance unless a new and unexpected result is produced (See MPEP 2144.04.VI.B.), thus rendering a plurality of robot arms having syringes as an obvious modification over Hashimoto.

Hashimoto does not explicitly teach a second table with a second plurality of robot arms. However, one of ordinary skill in the art would have recognized that depositing the sealing material to all of the image display parts all at once on a single table would have achieved the same results as if the deposition process was broken up into multiple steps using multiple tables. The mere duplication of parts has no patentable significance unless a new and unexpected result

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is produced (See MPEP 2144.04.VI.B.). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have broken up the deposition of the sealing material into multiple steps such that a second table having a second plurality of robot arms was used with a reasonable expectation of success.

Hashimoto does not explicitly teach independently driving the first table along a convey path of the substrate. However, Hachiman teaches a method of depositing materials from a nozzle onto an LCD substrate while moving the table in the XY-direction [0012]-[0014]. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have deposited the materials onto an LCD substrate by moving the table as opposed to moving the nozzle as taught in Hashimoto with a reasonable expectation of success because Hachiman teaches that such a method is operable for depositing material from a nozzle onto an LCD substrate. Because the table is independently moved, the substrate is driven along the convey path of the substrate. It should be noted that claims do not require any particular convey path.

Claims 10-11: Hashimoto does not teach a third table with a third plurality of robot arms. However, such a modification would have been obvious for the same reasons as having a second table with a second plurality of robot arms.

3. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto '920 in view of Komine '368, Iwane '953, and Hachiman '353 as applied to claim 13 above, and further in view of Yamamoto et al. (JP 61-055625, listed in the IDS filed 1/6/2004).

Hashimoto, Komine, Iwane, and Hachiman are discussed above, but do not explicitly teach that the first plurality of image display parts each have a first size and the second plurality of image display parts each have a second size different from the first size. However, Yamamoto teaches that LCD substrates can have image display parts of different sizes (Figs. 1-2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have the first plurality of image display parts each having a first size different from a second size of the second plurality of image display parts on the substrate of Hashimoto and Iwane with

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a reasonable expectation of success because the modification would not have changed the function of the LCD substrate and would have yielded nothing more than predictable results to one of ordinary skill.

4. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto '920 in view of Komine '368, Iwane '953, and Hachiman '353 as applied to claim 13 above, and further in view of Hashimoto et al. (U.S. Publication No. 2003/0083203).

Hashimoto '920 does not explicitly teach loading the substrate onto a second table, but does teach the need to inject liquid crystal onto the display area. The liquid crystal can be injected through a nozzle of a syringe ([0050]; Fig. 14). It would have been obvious to one of ordinary skill in the art at the time of invention to have used the above-discussed configuration of opposing robot arms in the dispensing of the liquid crystals because the modification would have yielded nothing more than predictable results to one of ordinary skill in the art. Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention to have dispensed the liquid crystals on a second table having a set of syringes different from that of the first table with a reasonable expectation of success in order to have reduced cross-contamination of the sealant and the liquid crystals and to have increased productivity by eliminating the step of changing out the dispensing material in the syringes of the first table. The independent driving of the second table is obvious over Hachiman, as discussed above.

Hashimoto '920 does not explicitly teach loading the substrate onto a third table or forming a plurality of silver dots at the outer edges of the image display parts using the syringes. However, Hashimoto '203 teaches that conductive fine particles, such as silver, can be dropped onto an LCD substrate from a nozzle [0102]-[0104], wherein the silver is dropped in the form of dots at the outer edges of the image display to prevent breaks and short circuits ([0191]-[0195]; Fig. 8). Hashimoto '920 teaches that materials can be deposited onto an LCD substrate by dropping the material through the nozzle of a syringe.

It would have been obvious to one of ordinary skill in the art at the time of invention to have connected the upper and lower substrates of Hashimoto '920 using the silver dots of Hashimoto '203 in order to have prevented breaks and short circuits. In addition, it would have been obvious to one of ordinary skill in the art at the time of invention to have dropped the silver

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dots onto the LCD substrate using the above-discussed configuration of opposing robot arms because the modification would have yielded nothing more than predictable results.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time of invention to have formed the silver dots on a third table with a third set of syringes different from that of the first and second tables with a reasonable expectation of success in order to have reduced cross-contamination and to have increased productivity by eliminating the step of changing out the dispensing material in the syringes of the first and second tables.

### ***Double Patenting***

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 10-15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 16-25 of copending Application No.

10/825,362 in view of Komine ‘368, and Ogino et al. (JP 2001-330840, listed in the IDS filed 1/6/2004).

The present claims are merely different permutations and combinations of the claims of ‘362. Additionally, ‘362 does not claim that A) the sealant is applied around the display parts, B) liquid crystal can be dispensed from the nozzles of the syringes, C) the plurality of dispensers

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are arranged on opposing sides of the tables, and D) a second and a third table can be used. However, Ogino teaches that A) the sealant can be applied around first and second image display parts (Fig. 6) for an LCD element in order to improve the display quality of the LCD (abstract) and B) liquid crystal can be applied by dripping. The syringe/nozzle setup of '362 is suitable for applying material by dripping onto a substrate. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have dripped liquid crystal onto the LCD substrate of '362 because Ogino teaches that such a method is suitable for applying liquid crystals onto a substrate. In addition, it would have been obvious to one of ordinary skill in the art at the time of invention to have applied the sealant around the first and second image display parts in order to provide a seal around the liquid crystals.

'362 and Ogino do not require that C) the plurality of dispensers are arranged on opposing sides of the table. However, such is obvious over Komine for substantially the same reasons as discussed above.

'362 and Ogino do not teach that the substrate is transferred to different tables. However, it would have been obvious to one of ordinary skill in the art at the time of invention to have dispensed each of the sealant, liquid crystal, and silver dots on first, second, and third tables having a first, second, and third set of syringes for substantially the same reasons as discussed above.

Claims 10-11 and 13-14: Hashimoto does not explicitly teach that the second and third seal patterns can be formed on second and third tables, respectively, wherein each table has a different set of robot arms. However, one of ordinary skill in the art would have recognized that depositing the sealing material to all of the image display parts all at once on a single table would have achieved the same results as if the deposition process was broken up into multiple steps using multiple tables. The mere duplication of parts has no patentable significance unless a new and unexpected result is produced (See MPEP 2144.04.VI.B.). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have broken up the deposition of the sealing material into multiple steps such that second and third tables having a



second and a third plurality of robot arms, respectively, were used with a reasonable expectation of success.

This is a provisional obviousness-type double patenting rejection.

### ***Response to Arguments***

7. Applicant's arguments filed 3/4/2008 have been fully considered but they are not persuasive.

Applicant argues on pg. 8-9 that even if an area of the first, second, and third pluralities of image display parts may change as an area of the substrate increases or as the liquid crystal display panel changes, the first, second, and third pluralities of robot arms may easily accommodate the changes. Applicant further argues that reconfiguration of the dispensing system may not be necessary, thereby increasing productivity and efficiency. However, the claims must at least require that the image display parts are different sizes and that the tables are moved during deposition without moving the robot arms. If the claim is open to having only the robot arms moving during deposition, then advantages as described will not be realized. Currently, only claim 10 requires moving the table during deposition without moving the robot arms, and only claim 14 requires that the image display parts can have different sizes. Thus, there is no evidence that the current claims have any criticality or unexpected results.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Song (U.S. Patent 6,252,643) teaches connecting upper and lower LCD substrates using silver dots. Hayashi et al. (U.S. Patent 4,869,935) teaches the use of a plurality of robotic arms arranged on opposing sides.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is (571)272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jimmy Lin/  
Examiner, Art Unit 1792

/Timothy H Meeks/  
Supervisory Patent Examiner, Art Unit  
1792